



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/875,021      | 06/07/2001  | Nobuhiro Kihara      | SON-2139            | 9245             |

7590 06/27/2002  
RADER, FISHMAN & GRAUER, P.L.L.C.  
Suite 501  
1233 20th Street, NW  
Washington, DC 20036

EXAMINER

LAVARIAS, ARNEL C

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2872

DATE MAILED: 06/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/875,021

Applicant(s)

KIHARA, NOBUHIRO

Examiner

Arnel C. Lavarias

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Priority*

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 6/8/00. It is noted, however, that applicant has not filed a certified copy of the P2000-172616 application as required by 35 U.S.C. 119(b).

### *Specification*

2. The disclosure is objected to because of the following informalities:

Page 2, line 3- insert "a" after "been"

Page 4, line 13- "FIG. 3 is" should read "FIG. 3A-3B are"

Page 4, line 19- "FIG. 6 is" should read "FIG. 6A-6C are"

Page 4, line 23- "FIG. 8 is" should read "FIG. 8A-8B are"

Page 5, line 16- "objects" should read "object"

Page 7, line 25- "FIG. 3" should read "FIG. 3A-3B"

Page 8, line 11- "an" should read "a"

Page 9, line 20- after "FIG. 6C.", delete "In"

Page 10, line 26- insert "the" after "is"

Page 12, line 6- "round" should read "around"

Page 14, line 19- insert "the" after "to".

Appropriate correction is required.

Art Unit: 2872

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Claim 6, lines 5-6- "an aerial image".

*Claim Objections*

4. Claims 2-9 and 12 are objected to because of the following informalities:

Claim 2, line 3; Claim 12, line 12- "image" should read "images"

Claim 3, line 5-6- "a projected image from this" should read "projected images from said". Claims 4-9 are dependent on Claim 3, and hence inherit the deficiencies of Claim

3.

Claims 4 and 5 recite the limitation "said holographic stereogram" in line 3 of both claims. There is insufficient antecedent basis for this limitation in the claims.

Claim 7, line 4- "this image" should read "said image". Claims 8-9 are dependent on Claim 7, and hence inherit the deficiencies of Claim 7.

Appropriate correction is required.

*Claim Rejections - 35 USC § 112*

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Art Unit: 2872

6. Claims 6-9 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 6 sets forth the limitation "an aerial image" in lines 5-6 which has not been disclosed in the specification. No mention of any type of "aerial" image is made in the specification, particularly in Paragraphs 40-43 which describes the subject matter being claimed. Claims 7-9 are dependent on Claim 6, and hence inherit the deficiencies of Claim 6.

*Claim Rejections - 35 USC § 102*

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-4, 6-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen.

With regard to Claim 1, Chen discloses a holographic stereogram exposure apparatus comprising an object beam optical system (See 84 of Figure 11; col. 9, line 57-col. 12, line 2) which superposes and projects light beams passing through a plurality of images separately displayed in a parallax direction and then condenses these beams to project images on a holographic recording medium (See 92 of Figure 11) corresponding to the number of separations.

With regard to Claim 2, Chen discloses a reference beam optical system (See 128 of Figure 11; col. 9, line 57-col. 12, line 2) which projects a reference beam onto the hologram recording medium for interference with the images projected on the hologram recording medium (See 92 of Figure 11).

With regard to Claim 3, Chen discloses the object beam optical system comprising a spatial light modulation means (See 88 of Figure 11), a superposed projection optical system (See 118 and 120 of Figure 11), and a beam-condensing projection optical system (See 122 and 124 of Figure 11).

With regard to Claim 4, Chen discloses the object beam optical system dividing the spatial light modulation means in a parallax direction (See 118 in Figure 11; col. 10, lines 31-37). In this case, the x-axis in Figure 11 is noted as the parallax direction.

With regard to Claim 6, Chen discloses the superposed projection optical system (See 118 and 120 in Figure 11) in the object beam optical system superposing and projecting parts of an image separately displayed by the spatial light modulation means in a parallax direction and projecting this image as is in a non parallax direction (See col. 10, lines 31-37). In this case, the x-axis in Figure 11 is noted as the parallax direction. Also, the Examiner takes "an aerial image" to mean "a superposed image of the projected parts of an image".

With regard to Claim 7, Chen discloses the beam-condensing projection optical system (See 122 And 124 of Figure 11) of the object beam optical system projecting an image projected by the superposed projection optical system onto the hologram recording medium (See 92 in Figure 11) in a non-parallax direction and converging this image in a

parallax direction (See col. 10, lines 37-46). In this case, the x-axis in Figure 11 is noted as the parallax direction and the y-axis is noted as the non-parallax direction.

With regard to Claim 8, Chen discloses the beam-condensing projection optical system of the object beam optical system using a first-group lens (See 122 in Figure 11) and a second-group lens (See 122 in Figure 11; col. 10, lines 37-46).

With regard to Claim 9, Chen discloses the beam-condensing projection optical system of the object beam optical system being provided with a corrective lens (See 122 in Figure 11; col. 10, lines 37-46) between the first-group lens and second-group lens.

With regard to Claim 10, Chen discloses a holographic stereogram exposure method comprising an object beam projection step (See 84 in Figure 11; col. 9, line 57-col. 12, line 2) and a reference beam (See 128 in Figure 11; col. 9, line 57-col. 12, line 2) projection step.

With regard to Claim 11, Chen discloses the object beam projection step separately displaying a plurality of images in a parallax direction (See 88 in Figure 11), superposing and projecting light beams passing through this separately displayed image (See 84 in Figure 11), converging the projected image onto a hologram recording medium surface in a parallax direction, and forming the projected image in a non-parallax direction (See 122 and 124 in Figure 11; col. 9, line 57-col. 12, line 2).

With regard to Claim 12, Chen discloses a holographic stereogram generation system comprising an image generation system (See Figure 1; col. 7, lines 10-34; 88 in Figure 11), an object beam optical system (See 84 in Figure 11), and a reference beam optical system (See 128 in Figure 11).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Brooks et al.

Chen discloses the invention as set forth above. Chen lacks the object beam optical system vertically and horizontally dividing the spatial light modulation means so that the holographic stereogram to be made has parallaxes in vertical and horizontal directions. However, Brooks et al. teaches that a multiple lenslet array can be disposed in the path of the object beam in a holographic recording apparatus (See 11 of Figure 1; col. 3, line 31 - col. 4, line 10). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a multiple lenslet array, as taught by Brooks et al., in place of the lenticular lens array in the holographic stereogram exposure apparatus as disclosed by Chen. One would have been motivated to do this to provide improved uniformity and efficiency in recording the resultant hologram on the hologram recording medium.



Art Unit: 2872

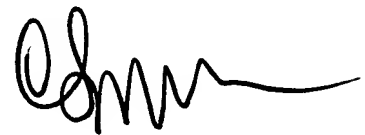
*Conclusion*

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 703-305-4007. The examiner can normally be reached on M-F 8:30 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1687. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.

Arnel C. Lavarias  
June 20, 2002



**Cassandra Spyrou**  
**Supervisory Patent Examiner**  
**Technology Center 2800**